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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,462	04/06/2007	Hiroaki Sata	1019519-000536	3316

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
03/24/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/584,462	SATA ET AL.	
	Examiner	Art Unit	
	SOPHIE HON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *25 and 26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/07,6/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-24, drawn to a product comprising a polarizing plate which comprises a transparent protective film comprising a cellulose acylate film that satisfies formula (III) and (IV).

Group II, claim(s) 25-26, drawn to a method comprising a polarizing plate which comprises a transparent protective film comprising a cellulose acylate film that satisfies formula (III) and (IV).

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: JP 2002-71949 teaches the common feature of a polarizing plate which comprises a transparent protective film comprising a cellulose acylate film that satisfies formula (III) and (IV).

2. During a telephone conversation with Robert Mukai on March 12, 2008, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-24. Affirmation of this election must be made by applicant in replying to this

Office action. Claims 25-26 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 7-9, 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa (JPO Website Machine English Translation of JP 2002-071949, original JP document for symbols and equations) in view of Graff (US 6,573,652).

Regarding claim 1, Ogawa teaches a polarizing plate which comprises a transparent protective film comprising a cellulose acylate film (acetate, [0010]), wherein Re (λ) and Rth (λ) defined by formulae (I) and (II) (See column 1, lines 10-20 of original JP document for equations) wherein λ = 550 nm ([0010]), which are expected to overlap the values at λ = 590 nm, and thus satisfy formulae (III) and (IV) (Re retardation value

within the range of 20-200 nm, Rth retardation value within the range of 70-400 nm, abstract). Ogawa teaches that the polarizer is disposed in a liquid crystal display device ([0011]) wherein the humidity of the environment is 65% RH at 25 °C (See column 1, lines 1-10 of original JP document for symbols), but fails to teach that the liquid crystal display device containing the polarizer is housed in a moisture-proofed container.

However, Graff teaches that a moisture-proofed container (encapsulated, water vapor transmission is less than, column 10, lines 1-15) is used to house a display device, for the purpose of preventing degradation of the display (column 3, lines 9-17), wherein the display device can be a liquid crystal one (column 3, lines 28-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have housed the display device and hence the polarizer of Ogawa in a moisture-proofed container, in order to prevent degradation of the display, as taught by Graff.

Regarding claim 2, Ogawa teaches a polarizing plate which comprises a transparent protective film comprising a cellulose acylate film (acetate, [0010]), wherein Re (λ) and Rth (λ) defined by formulae (I) and (II) (See column 1, lines 10-20 of original JP document for equations) wherein λ = 550 nm ([0010]), which are expected to overlap the values at λ = 590 nm, and thus satisfy formulae (III) and (IV) (Re retardation value within the range of 20-200 nm, Rth retardation value within the range of 70-400 nm, abstract). Ogawa teaches that the polarizer is stuck to a liquid crystal cell in a liquid crystal display device (laminated by this order, [0012]) wherein the humidity of the environment is 65% RH at 25 °C (See column 1, lines 1-10 of original JP document for

symbols). Only one humidity is taught by Ogawa, which means that this humidity is a constant one. Thus, the first humidity in the moisture-proofed container is the same with respect to a second humidity when the polarizing plate is stuck to the liquid crystal cell at the second humidity, and hence is within the claimed range of ±15% RH of the second humidity. Ogawa fails to teach that the liquid crystal display device containing the polarizer is housed in a moisture-proofed container.

However, Graff teaches that a moisture-proofed container (encapsulated, water vapor transmission is less than, column 10, lines 1-15) is used to house a display device, for the purpose of preventing degradation of the display (column 3, lines 9-17), wherein the display device can be a liquid crystal one (column 3, lines 28-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have housed the display device and hence the polarizer of Ogawa in a moisture-proofed container, in order to prevent degradation of the display, as taught by Graff.

Regarding claim 3, Ogawa teaches that the cellulose acylate is preferred to have Rth values that satisfy the expression $150 \leq Rth(550) \leq 400$ (Rth retardation value within the range of 150-400 nm, [0017], [0016]), which is expected to overlap the ones measured at 590 nm, and hence satisfy formula (V) of Applicant.

Regarding claim 7, Ogawa teaches that the cellulose acylate film comprises a retardation-developing agent comprising a compound that is aromatic ([0021]) such as one that comprises a triazine ring ([0022]) which is discotic.

Regarding claim 8, Ogawa teaches that the cellulose acylate film comprises at least one of a plasticizer ([0042]).

Regarding claim 9, Ogawa teaches that the cellulose acylate film has a thickness of 40 to 140 μm ([0044]) which contains the claimed range of 40 to 110 μm.

Regarding claim 18, Ogawa teaches a liquid crystal display comprising the polarizing plate ([0011]).

Regarding claim 19, Ogawa teaches a liquid crystal display comprising: a liquid crystal cell of a VA-mode, and a polarizing plate on each of the upper and lower sides of the liquid crystal cell (its both sides, [0048]).

Regarding claim 20, Ogawa teaches a liquid crystal display comprising: a liquid crystal cell of a VA-mode, and a polarizing plate on each of the upper and lower sides of the liquid crystal cell (its both sides, [0048]), which means that one of the polarizing plates is between the liquid crystal cell and the back light of the VA display.

Regarding claim 21, Ogawa teaches a polarizing plate which comprises a transparent protective film comprising a cellulose acylate film (acetate, [0010]), wherein Re (λ) and Rth (λ) defined by formulae (I) and (II) (See column 1, lines 10-20 of original JP document for equations) wherein λ = 550 nm ([0010]), which are expected to overlap the values at λ = 590 nm, and thus satisfy formulae (III) and (IV) (Re retardation value within the range of 20-200 nm, Rth retardation value within the range of 70-400 nm, abstract). Ogawa teaches that the polarizer is disposed in a liquid crystal display device ([0011]) wherein the humidity of the environment is 65% RH at 25 ºC (See column 1,

lines 1-10 of original JP document for symbols), but fails to teach that the liquid crystal display device containing the polarizer is housed in a moisture-proofed container.

However, Graff teaches that a moisture-proofed container (encapsulated, water vapor transmission is less than, column 10, lines 1-15) is used to house a display device, for the purpose of preventing degradation of the display (column 3, lines 9-17), wherein the display device can be a liquid crystal one (column 3, lines 28-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have housed the display device and hence the polarizer of Ogawa in a moisture-proofed container, in order to prevent degradation of the display, as taught by Graff.

Regarding claim 22, Graff teaches that the moisture-proofed container comprises a material having a water vapor permeability of near 0 g/m^2.24 hr under a condition of 38 ºC and 100% RH for 24 hours ($g.m^2$/day, Table 1, column 7, lines 35-55) which is within the claimed range of 30 or less under a condition of 40 ºC and 90% RH for 24 hours.

Regarding claim 23, Graff teaches that the moisture-proofed container comprises a plastic film having a ceramics layer, for the purpose of providing the desired moisture-proofing (PET/silicon oxide, Table 1, column 7, lines 35-55).

Regarding claim 24, Graff teaches that the moisture-proofed container comprises a plastic film and an aluminum foil, for the purpose of providing the desired moisture-proofing (PET/Al, Table 1, column 7, lines 35-55).

5. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view of Graff as applied to claims 1-3, 7-9, 18-24 above, as evidenced by Sato (US 6,600,034).

Ogawa, as modified by Graff, teaches the polarizing plate housed in a moisture-proofed container, which comprises a transparent protective film comprising the cellulose acylate film described above.

Regarding claim 4, Ogawa teaches that the cellulose acylate film comprises a cellulose acylate in which a hydroxyl group of a cellulose is substituted by an acetyl group ([0009]). There are no acyl groups having 3 to 33 carbon atoms in the cellulose acylate of Ogawa, and thus the substitution degree B = 0. Ogawa teaches that the acetylation degree is 61.5% ([0009]), which corresponds to a substitution degree A = 3.00 * 61.5%/65.5% = 2.8, which satisfies formula (VI) of Applicant, as evidenced by Sato.

Sato teaches that the maximum degree of substitution is 3.00 (column 3, lines 39-47) which corresponds to the maximum degree of acetylation of 62.5% (column 3, lines 54-65).

Regarding claim 5, parent claim 4 recites a Markush group containing the acyl group having 3 to 22 carbon atoms, which means that this limitation is optional.

6. Claims 6, 10-11, 13, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view of Graff as applied to claims 1-3, 7-9, 18-24 above, and further in view of Ito (US 2003/0218709).

Ogawa, as modified by Graff, teaches the polarizing plate housed in a moisture-proofed container, which comprises a transparent protective film comprising the cellulose acylate film described above.

Regarding claim 6, Ogawa teaches that the acetylation degree is 61.5% ([0009]). Ogawa is silent regarding the total substitution degree of a hydroxyl group at the sixth position of the cellulose.

However, Ito teaches a cellulose acylate film that comprises a cellulose acylate where the acetylation degree is 61.5% ([0108]) and the total substitution degree of a hydroxyl group at the sixth position of the cellulose is 0.88 or more ([0112]), which is within the claimed range of 0.75 or more, for the purpose of providing the desired properties in the formation of a protective film of a polarizing plate ([0002]).

Therefore, since Ogawa is silent regarding the total substitution degree of a hydroxyl group at the sixth position of the cellulose, it would have been necessary and hence obvious to have looked to the prior art for a suitable one. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the cellulose acylate film of Ogawa with a total substitution degree of a hydroxyl group at the sixth position of the cellulose that is within the range of 0.75 or more, in order to provide the desired properties in the formation of a protective film of a polarizing plate, as taught by Ito.

Regarding claim 10, Ogawa is silent regarding the glass transition temperature of the cellulose acylate film.

However, Ito teaches that the glass transition temperature of the cellulose acylate film is 120°C ([0712]) which is within the claimed range of 70 to 135°C, for the purpose of providing the desired balance of flexibility and dimensional stability.

Therefore, since Ogawa is silent regarding the glass transition temperature of the film, it would have been necessary and hence obvious to have looked to the prior art for a suitable one. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the cellulose acylate film of Ogawa with a glass transition temperature within the range of 70 to 135°C, as taught by Ito, in order to provide the desired balance of flexibility and dimensional stability.

Regarding claims 11, 16, Ogawa is silent regarding the elastic modulus and the photoelastic coefficient of the cellulose acylate film.

However, Ito teaches that the cellulose acylate film has an elastic modulus of 3,000 MPa ([0086]), which is within the claimed range of 1500 to 5000 MPa, and a photoelastic coefficient of 10×10^{-13} cm^2/dyne or less (1.0×10^{-5} cm^2/kg, [0085]), which is within the claimed range of 50×10^{-13} cm^2/dyne or less, for the purpose of preventing light leakage when the cellulose acylate film is disposed in a display ([0075, 0079]).

Therefore, since Ogawa is silent regarding the elastic modulus and photoelastic coefficient of the film, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the cellulose acylate

film of Ogawa with an elastic modulus within the range of 1500 to 5000 MPa, and a photoelastic coefficient within the range of 50 x 10^{-13} cm^2/dyne or less, in order to prevent light leakage when the cellulose acylate film is disposed in a display, as taught by Ito.

Regarding claim 13, Ogawa teaches that the cellulose acylate film has a thickness of 70 to 120 µm ([0044]), which contains the claimed thickness of 80 µm. Ogawa is silent regarding the water vapor permeability of the film.

However, Ito teaches that the cellulose acylate film has a water vapor permeability of 300 to 700 g/m^2.24 hr ([0374]) which is within the claimed range of 300 to 1000 g/m^2.24 hr, for the purpose of providing the desired balance between solvent permeability during processing and polarizer stability during operation ([0372]). Ito fails to disclose the testing conditions of the film.

However, Graff teaches testing conditions of 38 °C and 100% RH for 24 hours (g.m^2/day, Table 1, column 7, lines 35-55) that simulate the operating conditions for a display device (abstract) which are similar to the claimed conditions of 40 °C and 90% RH for 24 hours.

Therefore, since Ogawa is silent regarding the water vapor permeability of the film, it would have been necessary and hence obvious to have looked to the prior art for a suitable one. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the cellulose acylate film of Ogawa, with a water vapor permeability within the range of 300 to 1000 g/m^2.24 hr taught by Ito, measured at a thickness of 80 µm, under the conditions of 40 °C and 90% RH for 24

hours to simulate the operating conditions for a display device similar to the ones taught by Graff, in order to provide the desired balance between solvent permeability during processing and polarizer stability during operation, as taught by Ito.

7. Claims 12, 14-15, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in view of Graff as applied to claims 1-3, 7-9, 18-24 above, and further in view of Tasaka (US 6,814,914).

Ogawa, as modified by Graff, teaches the polarizing plate housed in a moisture-proofed container, which comprises a transparent protective film comprising the cellulose acylate film described above.

Regarding claim 12, Ogawa is silent regarding the equilibrium moisture content of the film,

However, Tasaka teaches that the equilibrium moisture content at 23ºC and 80% RH (column 30, lines 1-2), which is similar to the claimed conditions of 25ºC and 80% RH, for a cellulose acylate film that is used as a protective film for a polarizing plate (column 31, lines 9-15), is 1.5 to 3.0% (column 31, lines 15-20), which is within the claimed range of 3.2% or less, for the purpose of providing the desired durability (column 31, lines 9-15).

Therefore, since Ogawa is silent regarding the equilibrium moisture content of the film, it would have been necessary and hence obvious to have looked to the prior art for a suitable one. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the cellulose acylate film of Ogawa, with an equilibrium moisture content within the range of 3.2% or less under

similar conditions of 25ºC and 80% RH, in order to provide the polarizing plate with the desired durability, as taught by Tasaka.

Ogawa is silent regarding the haze value of the cellulose acylate film, and fails to teach that the film comprises silicon dioxide particles, or that the polarizing plate comprises an antiglare layer.

However, Tasaka teaches that the haze value of the cellulose acylate film is within the range of 0 to 1% (not more than, cellulose ester, column 25, lines 60-63), which overlaps the claimed range of 0.01 to 2%, for the purpose of providing the desired transparency. Tasaka teaches that the film comprises a silicon dioxide particle (column 17, lines 20-25) having an average secondary particle size of 0.005 to 1.0 μm (column 17, lines 29-30) that overlaps the claimed range of 0.2 to 1.5 μm, for the purpose of providing the film with the desired transportability as well as antiglare properties derived from the matte surface (matting agent, column 17, lines 8-12). Since Tasaka teaches that the cellulose acylate film is used as a protective film for a polarizing plate (column 31, lines 9-15), the matte surface allows it to also function as an antiglare layer for the polarizing plate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the cellulose acylate film of Ogawa with a haze value within the range of 0.01 to 2% taught by Tasaka, in order to provide the desired transparency, and to have added silicon dioxide particles having an average secondary particle size with the range of 0.2 to 1.5 μm, to the transparent protective film

for the polarizing plate of Ogawa, in order to obtain the desired transportability and antiglare properties derived from the matte surface, as taught by Tasaka.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris, can be reached on (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/
Sow-Fun Hon

/KEITH D. HENDRICKS/
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